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NEW DYTISCIDÆ.

BY H. C. FALL.

PASADENA, CAL.

By way of preface, it may be said that the present contribution is the result of a conversation not long since with my long-time friend Mr. John D. Sherman, Jr., at his home in Mt. Vernon, N. Y. Mr. Sherman, as is well known to most coleopterists, has for many years collected and otherwise accumulated North American Dytiscidæ, of which family he doubtless now possesses the largest and richest material to be found in any American collection.

In view of the proposed new check list of Coleoptera, Mr. Sherman expressed the opinion that a number of the more distinct new species ought to be at once described, and suggested that I undertake the task. After some hesitation I agreed to make the effort and soon received from him a box containing good series of thirteen new species, of which he wrote: "These are sufficiently distinct, I believe, to be safely described without monographic work." To these I have added a number of others from my own collection, and a little later, when there shall have been time for further investigation, I hope to have something further to add concerning some more obscure forms.

Since the appearance of Dr. Sharp's monumental work on the Dytiscidæ—now thirty-five years ago—very little has been written concerning our own species of the family. Notwithstanding the great

value of this monograph, its use is very unsatisfactory to the American student as a guide to the identification of the species of his own fauna. Dealing as it does with the faunas of the whole world, and being almost destitute of dichotomous tables, it is altogether too cumbrous and indefinite for this purpose. Contributory to this state of affairs may be mentioned the fact that Sharp had been unable to secure anything like an adequate representation of North American forms, and was too often forced to base his opinions on but one or two examples of a species, and those not infrequently in poor condition. Even as late as 1902, in a letter to the writer, Dr. Sharp confessed to having "only a miserable representation of North American Dytiscidæ." It is moreover true that such genera as *Laccophilus*, *Celambus*, *Hydroporus*, *Ilybius*, etc., constitute more or less difficult studies, and even with our more abundant material no one has yet acquired sufficient familiarity with our species to venture a tabulation of them.

Types of all the new species described in the following pages are in the writer's collection, with the exception of *Hydroporus dixianus*, of which the type is in the Cornell University Collection at Ithaca, N. Y. Paratypes of this species are in my own and Mr. Sherman's collection.

Of all species sent for description by Mr. Sherman there are paratypes in his collection, and of these there are also paratypes in the collection of the American Museum of Natural History except *Celambus sylvanus*, *Hydroporus dixianus*, *H. tigrinus*, *H. var. suffusus* and *H. brevicornis*.

LACCOPHILUS.

The two following species are easily definable albeit the genus as a whole offers some puzzling problems to the systematist.

Laccophilus inconspicuus new species.

Form nearly regularly oval; finely reticulato-alutaceous, moderately shining, subimpunctate; testaceous, the elytra uniformly ochreo-testaceous to brownish, without maculation; beneath testaceous throughout, or with the metasternum or abdomen or both darker. Antennæ filiform, but thicker than in allied species, the intermediate joints not or scarcely twice as long as wide, the terminal joint largely blackish. Front tarsi narrowly dilated in the male; coxal file entirely wanting. Length 4.3 to 4.7 mm.; width 2.4 to 2.6 mm.

The type is a male from Winnipeg, Manitoba, sent me by Mr. J. B. Wallis, and bearing date VI—3—II. Other examples before me are labeled Edmonton, Alberta (Carr), and Magnolia, Colorado (Henderson). Mr. Sherman—in *litt.*—gives the following additional localities. Higher altitudes of the White Mountains in New Hampshire (Lake of the Clouds, 5,000 ft.; Starr Lake, 4,890 ft.; Storm Lake, 4,930 ft.); Montreal, Quebec; Mt. Mansfield, Vermont; Marquette, Michigan; Three Lakes, Wisconsin. The Colorado specimens have the elytra of an ochreous color, noticeably paler than in the Canadian ones, but there seems to be no other difference.

In general appearance this species resembles *mexicanus* rather closely, but the latter is not so regularly oval, being a little more attenuate posteriorly; the elytra are closely irrorate, as is usual in the genus (not at all so in *inconspicuus*), the antennæ are more slender, the intermediate joints more than twice as long as wide, the terminal joint not darker; the metasternum blacker, the male with evident though fine coxal file; the size a little larger.

***Laccophilus schwarzi* new species.**

Form narrowly ovate, posteriorly attenuate, the point of maximum width in advance of the middle of the length; surface highly polished, glabrous, virtually impunctate except for a few fine punctures near the front of the pronotum, and the usual irregular series along the middle of each elytron; color rufotestaceous above and beneath, the elytra variegated with fuscous, a small diffuse fuscous spot at the middle of the front margin of the pronotum, a similar shade along the middle of the base, and beneath at the outer margin of the hind coxal plates. The color of the elytra may best be described as fuscous with testaceous markings as follows: An undulating subbasal transverse band often interrupted at the suture, an irregular discal quadrate spot at the apical third, between these several narrow longitudinal lines; and also the extreme apex. Antennæ and legs entirely pale. Front tarsi of male scarcely at all incrassate and with very few squamules beneath; coxal file entirely wanting. Length 3.9 to 4.2 mm.; width 2 to 2.2 mm.

Virginia (Ash Grove—type ♂); Maryland (Bladensburg—September).

Eight examples are before me, all submitted by Mr. Sherman. Of this species Mr. Sherman writes: "Originally found by Mr. Schwarz at Bladensburg, Md., and has been taken, so far as I know, only at the two places (mentioned above), both near Washington, and only in September, in the almost dried-up brooks, in eddies where fallen

trees or stumps have made dams in which there is an accumulation of dead leaves, etc., and upon surface of water a considerable collection of scum and rubbish.

Schwarzi is obviously allied to *undatus* Aubé, which is however a little less attenuate, less shining, with distinctly reticulated surface, more obscure and somewhat different elytral markings, prothorax and under side entirely pale, antennæ with terminal joint infuscate.

I have been pleased to use for both this and the preceding species the appropriate MS. names given them by the late Mr. C. H. Roberts and by which it is likely they are known in certain collections.

BIDESSUS.

Bidessus quadripustulatus new species.

Broadly ovate, very convex, pointed behind; surface above polished and strongly shining (except the head); pubescence exceedingly short and sparse; above black, prothorax anteriorly yellow except in about the middle third; elytra each with two yellow spots, one subbasal, transverse, extending from side margin two thirds the distance to suture; the other subapical, oblique, oval. Antennæ piceous, basal three or four joints pale. Head alutaceous, finely sparsely punctate, finely margined in front. Prothorax more coarsely and closely punctate, the punctures gradually coarser toward the base; elytra still more coarsely punctate, the punctures separated, as a rule, by less than their own diameters; equally close but decreasing somewhat in size toward the sides and apex; sides of prothorax and elytra not quite continuous, the re-entrant angle, however, very broad and feeble, the former arcuate in front and strongly diverging posteriorly; elytra widest at about basal third, sutural stria entirely wanting. Body beneath piceous or rufopiceous; metasternum, coxal plates and abdomen basally, coarsely numerous punctate. Legs rufotestaceous, the tibiæ and tarsi usually darker. Length 2 to 2.2 mm.; width 1.15 to 1.25 mm.

California. San Bernardino Mts., July 12-13; five examples taken by the writer; sexes not certainly distinguishable.

This species is allied closely to *pictodes* Sharp, but is distinctly stouter and a little more convex than the latter, and the elytral spots are never so large. The basal thoracic and elytral striae are similarly discontinuous, perhaps a trifle more so in the present species, while the elytral portion of the stria is here barely or scarcely as long as the thoracic portion, while in *pictodes* it is fully as long as the thoracic portion. The punctuation both above and beneath is observably coarser in *quadripustulatus*, and the sutural stria seems constantly lacking. In *pictodes* the sutural stria is traceable though faint.

Bidessus decoratus new species.

Closely similar to the preceding species, but apparently distinct by the following differences: Form just perceptibly less stout, punctuation perceptibly less coarse and close above, and more noticeably so beneath; sutural stria feebly impressed but clearly enough evident in basal two thirds by the serially arranged punctures defining a sutural interval which is abruptly, sparsely, very finely punctate; posterior elytral spot more elongate, and in the type interiorly emarginate. The basal elytral stria is very nearly continuous with that of the prothorax and is relatively a little longer than in *quadripustulatus*. Length 2.1 to 2.3 mm.; width 1.15 to 1.35 mm.

Arizona. Two specimens only are in my collection; the type recently collected in the Catalina Mts. by a correspondent of Dr. Fenyès, who has kindly turned it over to me; the second example bearing simply the label "Ariz."

This species must be very similar to the Mexican *Bidessus* (*Hydroporus*) *fryi* Clk., but if the statement made in the description of the latter that "the elytra are covered sparingly with minute punctures" is correct, it is hardly possible that they can be identical. In *decoratus* the elytral punctures are decidedly coarse for so small an insect, and are separated by scarcely more than their own diameters.

Our three broadly ovate quadrimaculate species may be briefly characterized as follows:

Elytra without sutural stria, form more broadly ovate, punctuation coarser and denser, notably so beneath; pale elytral spots occupying much less than half the entire area. San Bernardino Mts., So. Cal., 5,000 feet,

quadripustulatus.

Elytra with faint but traceable sutural stria, between which and the suture the punctures are not appreciably finer; elytral spots large, occupying as a rule more than half the entire area. Ventura, Cal., near the coast,

pictodes.

Elytra with feebly impressed sutural stria defined by punctures, between which and the suture the punctuation becomes abruptly very much sparser and finer; elytral spots occupying much less than half the entire area. So. Arizona**decoratus.**

Bidessus ornatellus new species.

Size and form nearly as in *affinis*, the elytra a little less pointed behind; upper surface subglabrous and strongly shining; general color ochreous yellow, elytra fuscous with antemedian and postmedian zigzag or undulating yellow fasciæ, the apex yellow; apical and basal margins of prothorax very narrowly infusate, at least medially. Antennæ yellow with outer joints

dusky. Head alutaceous, minutely sparsely irregularly punctate. Prothorax with sides nearly straight and a little converging from base three fourths to apex, surface finely, sparsely punctate at sides, punctures closer at middle, especially posteriorly and along the apical and basal margins; basal striae strongly impressed, a little oblique, attaining the middle of the length. Elytra widest at basal two fifths, strongly, rather coarsely punctate, the punctures separated by about their own diameters; sutural striae distinctly impressed throughout, the space between them minutely sparsely punctate; basal striae parallel, nearly twice as long as the thoracic striae and continuous with them. Body beneath yellowish, the abdomen darker in the type; coxal plates and base of abdomen with sparse, coarse punctures. Length 1.95 mm.; width .9 mm.

Described from two examples of uncertain sex taken at Portland, Oregon, by Professor Wickham. This species is not very closely related to any of ours previously described, but may provisionally be placed near *subtilis*, which is of the same size and form and has a similar sutural stria. In *subtilis* there is a well-developed pubescence, the punctuation is much finer, and there is no appreciable disparity in size of the punctures between and without the sutural striae.

Bidessus floridanus new species.

Elongate, oval, not very much more obtusely rounded in front than behind; subglabrous, strongly shining; dull yellow, prothorax a little darker, elytra suffused throughout with brownish, diluted along the margins, and with a very obscure paler discal vitta. Head minutely remotely punctulate. Prothorax more strongly, somewhat unevenly and rather sparsely punctate, elytra more closely and coarsely so, sutural stria entirely wanting; basal stria distinctly shorter than that of the prothorax. Body beneath with a few fine scattered punctures on the coxal plates, and some coarser ones toward the abdominal base, for the most part serially arranged along the sutures; legs and antennae entirely pale. Length 1.75 to 2 mm.; width .8 to .9 mm.

Florida (Jacksonville and Dunedin). Three examples from the former locality, including the type, given me some years ago by Mr. Sherman; and two from the latter locality recently sent by Mr. Blatchley.

This species is most nearly related to *fuscatus*, in which the basal thoracic stria is similarly conspicuously longer than its continuation on the elytra. *Fuscatus* is also a stouter species, color beneath darker, form more obtuse in front, with sparser but coarser punctuation above, and with coarse punctures on the coxal plates. Some examples of *affinis* are rather similar, but these are more attenuate behind, more finely punctate, and the basal striae of the elytra and thorax are subequal in length.

Bidessus suburbanus new species.

Ovate, polished, very finely and feebly pubescent, ochreous, elytra clouded with fuscous at base, narrowly so along the elytral suture, and with some more or less evident transverse discal clouds behind the middle; metasternum and abdomen—especially toward the base—brownish ochreous. Head and prothorax minutely sparsely punctate, the elytra a little more strongly so, the punctures separated from two to three times their own diameters; basal thoracic and elytral striæ as in *granarius*. Body beneath with a few minute scattered punctures. Otherwise nearly as in *granarius*. Dimensions of type: length 1.85 mm.; width .95 mm.

There is but slight variation in the series at hand. Fifteen examples are before me, all but one (including the type) from Staten Island, New York. One specimen is labeled "Penn."

Concerning the species, Mr. Sherman writes: "I have seen it only from Staten Island (taken in a pond in the woods no longer existing) and from Carbon Co., Pa., and from 'Pa.'"

Although closely related to *granarius*, it is abundantly distinct by its less broadly ovate form, less pointed behind, and finer sparser punctuation both above and beneath. The blackish shade at the base of the elytra is nearly wanting in *granarius*. There are no obvious sexual differences.

CÆLAMBUS.**Cælamбус sylvanus** new species.

Form rather narrowly ovate, widest before the middle, moderately convex, glabrous, both sexes shining; color castaneous, the antennæ, legs and under surface of head and prothorax brighter rufous. Head and prothorax finely, sparsely punctulate, the latter more strongly and closely so along the front and rear margins. Elytra widest a little behind the base, sides continuous in outline with the prothorax; punctuation not very close, consisting of intermixed, moderately coarse and much finer punctures. Metasternum, hind coxal plates, and sides of the basal ventral segments sparsely punctate, the punctures gradually diminishing in size from front to rear. Front and middle tarsi of male moderately dilated, a little narrower in the female; claws small and slender, unmodified in the male. Length 2.5 to 2.7 mm.; width 1.35 to 1.45 mm.

New York (Peekskill—Sherman). The type is a male bearing date 6—3—90. Of this species Mr. Sherman writes: "Known to me only from Peekskill; taken in a pond in the woods no longer existent."

The present species is very nearly allied to *C. laccophilinus* (wrongly described and recorded in the Henshaw List as a *Hydro-*

porus) of which I have specimens sent many years ago by Mr. Sherman, and bearing label "Peekskill, June 19, 1890," quite probably taken under similar conditions. *Laccophilinus* is larger and broader and evidently less convex than *sylvanus*; there is less disparity in the size of the elytral punctures and the females are opaque and more finely punctate.

HYDROPORUS.

Hydroporus triangularis new species.

Strongly elongate, convex, pointed behind, shining, subglabrous, the disk with very short and sparse appressed hairs, and along the side and near the apex a few long, excessively fine flying hairs. Color throughout yellowish testaceous, head slightly darker, elytra with brownish fuscous markings as follows: a transverse posteriorly convex basal spot, a broad subparallel-sided fascia at middle and another somewhat narrower subapical one, the two connected along the suture. Antennæ of moderate length, intermediate joints gradually thickened in both sexes, the fifth joint in the male enlarged, triangular, the outer edge sinuately oblique, the apical edge at right angles to the antennal axis. Head evenly convex, lateral impressions subobsolete, clypeus not thickened, punctures fine and very sparse on an excessively finely, densely punctulate ground. Prothorax slightly more than twice as wide as long, sides arcuate, very finely margined, the margin not thickened anteriorly; surface like the head very densely, minutely punctulate with scattered larger punctures. Elytra minutely reticulate and finely, sparsely punctate. Body beneath finely, sparsely, rather feebly punctate, the punctures coarsest on the metasternum, becoming very remote, fine and feeble toward the ventral apex. Prosternum gradually declivous in front, the median carina nearly attaining the front margin; metasternum grooved at summit; coxal lines parallel. Anterior tarsi narrowly dilated, scarcely wider in the male, in which the claws are unmodified. Length 3.75 to 4 mm.; width 1.75 to 1.9 mm.

Wisconsin (Sauk City) 4 ♂'s, 6 ♀'s. Specimens sent by Mr. Sherman are said to have been collected by Mr. W. S. Marshall. This remarkable species, though close to the one which follows, is otherwise very distinct from any other in our fauna.

Hydroporus pilatei new species.

Closely related to the preceding species, differing as follows. Fourth and fifth antennal joints in the male conspicuously enlarged, the fifth larger than the fourth, longer than wide, the outer (posterior) edge rounded in apically, instead of sinuately produced to form an acute angle. The apical margin of the prothorax is infusate, the punctuation of the upper surface even finer and sparser than in *triangularis*; the lower surface virtually impunctate in the usual sense, though with the same excessively fine, dense punctuation

as a ground sculpture, that prevails in *triangularis*. Length 4.2 mm.; width 1.9 mm.

The unique type was taken at Winnfield, Louisiana, by Mr. G. R. Pilate, from whom I received it.

Mr. Sherman (*in litt.*), alluding to the Sauk City, Wisconsin, species mentions having seen a specimen sent by M. Oberthur, of Rennes, France, labelled *Opelousa* La. It is more than likely that this specimen belongs to the present species rather than to *triangularis*.

The general facies of *pilatei* and *triangularis* is somewhat similar to *concinus* and allies, and the modification of the male antennæ in *diversicornis* of the *concinus* group suggests a relationship, so that, tentatively, the two species here described may be placed before *diversicornis*, though it must be confessed there is little else indicating such association.

Hydroporus cocheconis new species.

Of the *concinus* type; elongate, obtuse in front, rather pointed behind, flavo- to rufotestaceous, elytra with two broad, indented and more or less confluent transverse black fasciæ; integuments moderately shining, minutely reticulate, finely and evenly punctate throughout, the punctures separated on the average by twice their own diameters; pubescence very fine and sparse. Antennæ yellow, terminal joint largely blackish, the apices of one or two of the preceding joints occasionally dusky. Head feebly impressed each side, clypeus not thickened. Sides of thorax very feebly, evenly arcuate, margin moderately wide in front, much narrower posteriorly, disk with the apical margin infuscate throughout the width of the head, base similarly but usually more narrowly infuscate, sometimes not at all so. Elytra one half longer than wide, base with or without one or two black discal spots, the two broad black indented fasciæ (typical of the group) connected narrowly along the suture, and often at the middle of each elytron, more rarely again toward the sides; fasciæ not attaining side margins, the suture dark throughout. Body beneath and legs entirely rufotestaceous; metasternum and coxal plates coarsely rather closely punctate, first two ventrals less coarsely and closely so, third ventral moderately punctate, last three segments finely and sparsely so. Length 3 to 3.7 mm.; width 1.4 to 1.8 mm.

Described from a series taken by the writer at Farmington, New Hampshire, in July and August, in the gravelly shallows of the Cocheco River.

There is no appreciable sexual difference in surface luster, and very little in the dilatation of the front tarsi, which are only moderately wide in the male. As in all species of the group, the anterior

claw of the front tarsus in the male is a little thickened, straighter, and slightly sinuate interiorly; the modification is however feeble. *Cocheconis* is separable from the other members of the *concinus* group by the very coarsely punctate metasternum and coxal plates.

Hydroporus ohionis new species.

Of the *concinus* group and similar to the preceding except as follows: The prothorax is rufocastaneous, with the front and hind margins blackish, head slightly to scarcely paler, elytra pale flavotestaceous with the usual broad, irregular transverse black fasciæ. Body beneath rufopiceous, legs rufotestaceous. Prothorax more finely and sparsely punctate at the middle of the disk than elsewhere (this difference being scarcely obvious in *cocheconis*); elytra slightly more coarsely and sparsely punctate than in *cocheconis*, and very distinctly more so than in *concinus*; metasternum and coxal plates less coarsely and more sparsely punctate than in *cocheconis*, but more coarsely so than in *concinus*. Length 3.2 mm.; width 1.5 mm.

Cincinnati, Ohio. Three males, collected by Chas. Dury, and sent me many years ago mixed with examples of what we now regard as *concinus*. The latter averages larger, the prothorax and head concolorous with, or only slightly darker than the elytra, the lower surface piceous.

Hydroporus shermani new species

Narrowly ovate, male moderately shining, female with duller luster, pubescence obvious, color rufotestaceous above and below, pronotum with apical marginal fuscous spot, elytra with shorter basal and two broad uneven discal fasciæ irregularly connected longitudinally, so as to leave the sides at base, an antemedian and a postmedian interrupted fascia made up of longitudinal spots and dashes of variable length, and the apex pale. Antennæ of moderate length, the terminal joint and the apices of several preceding more or less infusate. Head finely, rather closely punctate, lateral impressions broad but distinct, clypeus not very evidently thickened, its posterior margin not very distinctly defined at middle. Prothorax rather finely but strongly, moderately, closely punctate, sides broadly, evenly arcuate, thickened margin narrow. Elytral punctures equal to those of the prothorax, their distances apart varying from one and a half to two times their own diameters. Prosternal anterior intercoxal declivity abruptly formed, but not strongly protuberant at summit; metasternum and coxal plates coarsely, rather closely punctate; ventral segments moderately strongly, not closely punctate, becoming finely, sparsely so toward the apex; coxal lines gradually, rather strongly divergent in front. Front and middle tarsi very broadly dilated in the male, evidently narrower but unusually wide in the female; anterior claw of front tarsus in the male thickened and only half as long as the posterior one. Length 3.4 to 3.6 mm.; width 1.7 to 1.75 mm.

The series before me comprises 2 males and 4 females from Staten Island, New York; 2 females from Gettysburg, Pa. (Devil's Den), and a male from Atoka, "Ind. T." (Wickham).

The Staten Island and Gettysburg specimens were all taken in fresh running water, according to Mr. Sherman, from whom they were received, and to whom in recognition of long friendship it gives me great pleasure to dedicate the species.

In the greatly abbreviated anterior claw of the front male tarsus, *shermani* agrees nearly with *clypealis*, the latter, however, is a distinctly more broadly oval species, with distinctly thickened clypeus and the side margins of the prothorax in the female sinuate at the anterior angles. In its more elongate form *shermani* agrees closely with *concinus* and allies.

Hydroporus dixianus new species.

Moderately broadly ovate, strongly shining, very finely and sparsely pubescent, flavotestaceous, elytra with diffuse or ill-defined fuscous vittiform markings; punctuation above fine and sparse throughout, the elytral punctures showing a tendency to become connected transversely so as to form a feeble wavy strigosity. Antennæ entirely pale; head feebly impressed, the clypeus not thickened. Thoracic side margins very fine, a faint shade at the middle of the apical margin, and sometimes very narrowly along the basal margin. Elytra widest but little behind the base, apex pointed. Body beneath uniformly rufotestaceous, prosternum without anterior intercoxal protuberance; metasternum rather deeply channeled medially, sides moderately coarsely, closely punctate; coxal plates less coarsely and closely punctate, becoming rather widely smooth posteriorly; ventral segments very finely and sparsely punctate except near the base. Anterior tarsi only moderately dilated, the middle tarsi evidently narrower. Length 3 to 3.2 mm.; width 1.6 to 1.7 mm.

Georgia (Spring Creek, Decatur Co., 26-28 Aug., '13).

The type series consists of six examples collected by Mr. J. C. Bradley, and sent me by Mr. Sherman. The type itself is returned to the Cornell University Collection at Ithaca, N. Y. There are no sexual differences observable.

The species is evidently closely related to *mellitus*, the form, color and markings being nearly identical in both; *mellitus* is, however, a distinctly smaller species, the punctuation of the upper surface everywhere less fine, the elytra not showing the feeble transverse strigosity observable in *dixianus*, and the metasternum rather more coarsely and uniformly punctate. The resemblance of *dixianus* to *vittatipennis*

(*lineolatus* Lec.) is also quite marked, but the latter is narrower, fully to more than twice as long as wide, with better defined elytral vittæ, and with the posterior coxal processes more closely appressed to the ventral surface.

***Hydroporus dilatatus* new species.**

Broadly ovate, shining, thinly pubescent, flavo- to rufotestaceous; elytra with heavy black markings of the *undulatus* type; antennæ, legs and under surface entirely pale. Head more distinctly alutaceous and less shining than the prothorax and elytra, finely punctate, impressions moderate, clypeus feebly thickened. Prothorax rather narrowly margined at sides, which are nearly straight; punctuation moderate, subevenly distributed, the punctures separated by more than their own diameters as a rule; a small, somewhat diffuse dark spot at the middle of the apical margin, and the basal margin narrowly infusate in middle half. Elytra one third longer than wide, margin continuous with that of the prothorax, slightly prominent at the humeri, thence straight and parallel or even faintly sinuate to a point just before the middle, broadly arcuately convergent and somewhat pointed posteriorly; punctuation similar to that of the prothorax, fuscous markings predominant, and so disposed as to leave an irregular subbasal pale fascia which broadens out at the margins, and on the disk is made up of transversely confluent longitudinal spots or dashes; a similar postmedian fascia and apex pale. The suture is entirely dark and the lateral margins are pale throughout. Metasternum and coxal plates rather coarsely, evenly, not densely punctate, the first two abdominal segments punctured nearly as the coxal plates, following segments gradually, more finely punctate; prosternal anterior intercoxal protuberance obsolete. Front tarsi moderately dilated, only very slightly more so in the male, in which the anterior claw is a trifle shorter, stouter, and feebly sinuate internally. Length 4 to 4.4 mm.; width 2.2 to 2.35 mm.

Maryland (Bladensburg, September 21—type ♂—Sherman); Massachusetts (Tyngsboro, August 31—September 5, Blanchard); New Hampshire (Farmington, August 21).

I have used for this species Zimmermann's MS. name, which is attached to a specimen in the Cambridge Museum. Mr. Sherman's specimens were taken in running brooks at Bladensburg, Maryland. Mr. Blanchard and I have taken it in a small meadow brook at Tyngsboro, Mass.; and the New Hampshire specimens were taken by the writer in the Cocheco River, a small clear stream with gravelly bed.

This species may be recognized by its broad ovate form, shining surface and rather distinctly contrasting markings (except in var. *suffusa*). *Spurius* Lec. (*peltatus* Sharp) is similar in form, size and markings, and at Tyngsboro, Mass., and Farmington, N. H., occurs

in the same streams with *dilatatus*: it differs from the latter in its generally paler yellow color, immaculate thorax, still more sharply contrasting elytral markings, and especially by the impressed discal lines on the elytra, with feeble intercostæ.

The following dark form has been considered a distinct species by Mr. Sherman, but the agreement in all essentials with typical *dilatatus* is so complete, that I am at present unable to see in it anything more than a suffused variety.

Var. **suffusus** new variety.

Similar to the typical form in most respects except color. The basal and apical thoracic dark areas are here extended and become almost confluent on the median line; dark markings of elytra broadly suffused, so as to obscure or obliterate the transverse pale fasciæ, which in the type are represented by a single small rufous spot at their outer extremities. In other examples the pale fasciæ are more complete, but smaller, more obscure and broken. The size is a little smaller on the average than in the typical form, and some females are apparently a little duller. Length 3.85 to 4.1 mm.; width 2.1 to 2.35 mm.

New Jersey (Eatonton, July 4), 3 ♂s, 3 ♀s, sent by Mr. Sherman, who writes that it occurs in running brooks.

Hydroporus sulcipennis new species.

Form moderate, subovate, scarcely as broad as in *undulatus*, and a little more pointed behind; surface finely alutaceous but moderately shining in both sexes, pubescence fine and thin; punctuation above rather fine, nearly uniform, the punctures separated on the average by about one and one half times their own diameters, finer and sparser on the head. Color flavo- to rufo-testaceous; prothorax with the posterior margin very narrowly infuscate in median half, and with or without a small diffuse fuscous spot or shade at the middle of the apical margin; elytral markings of the usual type, occupying one half to three fourths the superficial area, rather sharply defined. Head broadly feebly impressed each side, clypeus scarcely thickened. Antennæ entirely pale. Prothoracic margins narrow, scarcely wider in front. Elytra each with three longitudinal impressed lines or sulci, the middle one deepest, the inner one subsutural, the outer one at the middle of the elytron. Body beneath entirely pale, anterior intercoxal prominence of prosternum subobsolete; metasternum and coxal plates very grossly, moderately, closely punctate; the first and second ventral segments similarly but somewhat less coarsely so. Front tarsi of male moderately dilated, a little more strongly so than in the female, the claws equal, the anterior one a little stouter, their inner margins slightly bisinuate. Length 3.5 to 4 mm.; width 1.8 to 2.1 mm.

Twenty-one examples are before me, from the following localities:

New Hampshire (Farmington, August 4, type ♂; Randolph, 1,300 ft.; Sherman); Vermont (Bennington—Sherman); New York (Peekskill—Sherman); District of Columbia; Virginia (Ash Grove—Sherman).

A not uncommon species, occurring always, according to Mr. Sherman, and in my own experience, in running water. *Sulcipennis* is very nearly related to *spurius*, but is smaller and distinctly narrower, the elytral sulci more pronounced, the punctuation of the inferior surface even coarser. It is immediately separable from all our other species of *Hydroporus* by the elytral sulci.

Hydroporus semiflavus new species.

Oval, moderately elongate, flavotestaceous, male moderately shining, female dull; pubescence yellow, distinct, but less dense than in the closely allied *sericeus*. Antennæ entirely yellow, or with only the tip of the terminal joint dusky. Head closely, finely punctate, clypeus evidently but not strongly thickened. Prothorax similarly and not much more coarsely punctate than the head, side margins moderate, a transverse fuscous spot at the middle of the apical margin, the base also narrowly infusate in middle half. Elytra one half longer than wide, widest at about the basal third, rather closely punctate, the punctures as large or slightly larger than those of the prothorax, and separated as a rule by their own diameters. The markings are fuscous or blackish, and consist of an entire sutural stripe dilated at middle and again before the apex, a spot on each at the middle of the base, behind which and narrowly separated from it is a broad longitudinal dash extending to a little beyond the middle, and near its posterior end connected transversely with the sutural stripe; a shorter longitudinal spot external to the preceding and an irregular transverse subapical spot. Metasternum and coxal plates coarsely, rather closely punctate. Anterior tarsi rather strongly dilated, a little wider in the male, in which sex the claws of the front tarsi are evidently stouter and more curved, the anterior claw a little thicker and about three fourths as long as the other. Length 3.8 to 4 mm.; width 1.9 to 2.1 mm.

Illinois (Glencoe), 3 ♂s, 5 ♀s—type ♂—sent by Mr. Sherman; Missouri (Pine), a single male in my own collection, from an unrecorded source.

This species is rather closely allied to a number of others, of which we may best select for comparison two neighboring species from the north and west—*sericeus*, inhabiting the Upper Lakes region, and *mixtus*, from Kansas and Nebraska. From these and all other closely allied forms (except *placatus* n. sp.) *semiflavus* may be primarily

recognized by the broader, simpler elytral markings, which leave on either side of the sutural stripe an anterior suboblong pale space, conspicuous in all examples before me, but which in allied species is much narrowed or broken up by the dark markings. *Mixtus* is a slightly larger species of a darker rufotestaceous color, the dark areas of the elytra predominating (dark and pale areas about equal in *semiflavus*), the form slightly different, the elytra being a trifle more pointed behind, with the point of maximum width nearer the base; the punctuation of the head finer and sparser, that of the elytra a trifle sparser and coarser, and of the metasternum slightly sparser than in *semiflavus*. *Sericeus* has the more nearly elliptical form of *semiflavus*, and a similar though more pronounced golden pubescence; in size it is distinctly larger and the elytral markings are more numerous and pronouncedly vittate in character; the punctuation of the metasternum and coxal plates is rather finer but denser than in *semiflavus*. In both *mixtus* and *sericeus* the anterior tarsal claws of the male are nearly as in *semiflavus*. For comparison with the very closely allied *placatus*, see the following:

***Hydroporus placatus* new species.**

Very closely allied to the preceding species, between which and *sericeus* it divides allegiance. Its size is scarcely as great as *sericeus*, but evidently larger than *semiflavus*. Its markings are those of *semiflavus* except that there is a tendency to suffusion on the elytra which diminishes the size of the anterior subsutural pale area and in some examples more or less completely obliterates the postmedian discal pale markings. The dark spot at the apical margin of the thorax is small, occupying about the middle third of the width as in *semiflavus*; it is much more extended in *sericeus*. The punctuation of the elytra is evidently finer and denser than in *semiflavus*, and that of the under surface is also denser, though scarcely appreciably finer than in the latter. In *sericeus* the punctuation above is nearly as in *placatus*, while that below is somewhat finer though about as dense. Length 3.9 to 4.3 mm.; width 2 to 2.2 mm.

Oregon (Corvallis), 1♂ (type), 4 ♀s; my own collection.

In the single male, the front claws are a little stouter and more suddenly bent, and a little sinuate on their inner margins, the anterior claw just perceptibly shorter. In *semiflavus* the front claws of the male appear to be a little more unequal and scarcely at all sinuate. In *sericeus* the inequality is a trifle more evident, the front claw not sinuate, the rear one somewhat so. Possibly these differences would not hold constant in a long series.

Hydroporus arizonicus new species.

Ovate elliptical, finely pubescent, flavotestaceous, elytra with vittiform markings of the *sericeus* type, luster dull in the female and scarcely more shining in the male; punctuation of thorax and elytra dense, the punctures separated by less than their own diameters or nearly in contact, punctures of head finer and less dense. Front very distinctly impressed each side, clypeus somewhat thickened. Prothorax with broad side margins, disk with a somewhat diffuse brownish cloud occupying the middle third or more, and extending from base nearly or quite to the apex. Elytra less than one half longer than wide, the sides straight and parallel for nearly half their length from a point just behind the base. The elytral vittæ, as in *sericeus*, consist of longer and shorter dashes which are variably coalescent, both longitudinally and transversely, the darker areas as a rule predominant. Body beneath coarsely, densely punctate, the punctures at corresponding parts evidently coarser and rather denser than in *sericeus*. Front tarsi of male rather widely dilated, with claws a little thicker, straighter, and slightly sinuate on their inner edge; the anterior one just perceptibly shorter. Length 4.6 to 5.2 mm.; width 2.35 to 2.55 mm.

Arizona (Tucson). Ten examples from the Sherman and Roberts collections. The type is a male.

This species is most nearly related to *sericeus* and *dimidiatus* but is larger than either, with sides of elytra more parallel basally. The prothoracic discal cloud will at once separate it from any allied form. In *dimidiatus* the prothorax is entirely pale, at most with the extreme basal edge very narrowly infuscate at middle. In *sericeus* both apical and basal margins are distinctly blackish except at sides.

Hydroporus tigrinus new species.

Size small, moderately elongate, subovate, sparsely, finely pubescent and moderately shining, though with the usual finely alutaceo-reticulate ground sculpture; rufotestaceous, the abdomen commonly darker rufous or rufopiceous at sides, especially basally; elytral disk predominantly fuscous, with confluent linear markings. Head entirely rufotestaceous, finely, sparsely punctate and distinctly biimpressed, clypeus not appreciably thickened. Antennæ moderate, entirely pale except for the apical half of the terminal joint. Prothorax finely and sparsely punctate medially, becoming rather closely and strongly so at base and apex, side margin rather wide; a small diffuse fuscous spot at the middle of the apical margin, basal margin usually narrowly infuscate in middle half, sometimes scarcely at all so. Elytra widest at about basal fifth, moderately, arcuately attenuate posteriorly, punctuation at base rather coarse, becoming gradually very fine at apex, the punctures separated on the average by twice their own diameters, somewhat closer basally. The markings may be described as vittiform in character, more or less transversely con-

fluent at base, again in a broad median indented fascia, and finally to form a transverse subapical blotch, leaving a subbasal and a postmedian transverse series of elongate spots or streaks, the side margin basally and the apex pale. Metasternum very coarsely not closely punctate; coxal plates similarly coarsely punctate basally, becoming gradually much more finely and sparsely so postero-externally; first and second ventral segments strongly but sparsely punctate except at sides of latter, the following segments very finely sparsely punctulate. Length 2.95 to 3.1 mm.; width 1.48 to 1.55 mm.

Virginia (Ash Grove), 4 ♂'s, 3 ♀'s, sent by Mr. Sherman. The type is a male.

The sexes are barely distinguishable by the very slightly stouter and just perceptibly sinuate front claws of the male. There is no apparent difference in surface luster, and the front tarsi are rather narrowly and equally dilated in both sexes.

Mr. Sherman writes of this species: "Like specimens in the Cambridge Museum labeled '*tigrinum* Zimm. MS.' Has been taken in running brooks with *blanchardi* Sherm. and *striatopunctatus* Melsh, but less common than either of these species."

Oddly enough, this little species is probably more nearly related to these same two species which Mr. Sherman says occur with it, than to any others in our fauna. That the species described by Sharp as *H. vitiosus* Lec. is not the true *vitiosus* was discovered, and referred to in notes taken by the writer in July, 1900, while making comparisons with some of the Leconte types at the Cambridge Museum. Mr. Sherman has recently¹ proposed the name *blanchardi* for this species.

It is, of the two species mentioned, most nearly allied to *tigrinus*. It is slightly larger and more depressed, the form more ovate, *i. e.*, more pointed behind, with the point of greatest width more nearly at the base of the elytra; the markings more obscure as a rule, the punctures of the thorax more uniform in size, and those of the elytra less conspicuously diminishing in size apically; the punctuation of the metasternum and coxal plates is obviously finer than in *tigrinus*. *Blanchardi* has been taken plentifully at Tyngsboro, Mass., by the late Frederick Blanchard and myself, and is known to me also from Conn., N. J., Pa., Va., and Ala.

¹ JOUR. NEW YORK ENT. SOC., XXI (1913), p. 52.

Hydroporus carolinus new species.

Form rather broadly ovate, less than twice as long as wide, shining, sparsely, finely pubescent; head, thorax, antennæ and legs rufous, elytra brownish piceous with faint diffuse rufous spots at sides near the base (sometimes completely wanting), a postmedian lateral irregular rufous spot, and the tip more or less obscurely rufescent. Prothorax slightly infusate along the basal margin and with a small diffuse fuscous spot at the middle of the apical margin. Antennæ entirely rufotestaceous. Head biimpressed as usual, finely punctate, clypeus feebly thickened. Prothorax widely margined at sides, rather coarsely, nearly uniformly punctate, the punctures separated by from one to one and one half times their own diameters. Elytral punctuation similar to that of the prothorax, but slightly coarser. Metasternum and coxal plates very coarsely, not closely, punctate; apical margin of postcoxal processes angularly prominent at middle. Front and middle tarsi of male moderately and nearly equally dilated, the claws of the front feet evidently stouter and more suddenly bent, but mutually equal. Length 3.75 to 4.1 mm.; width 2 to 2.2 mm.

North Carolina (Highlands, June, '88).

Described from a single pair (type ♂) given me by the late Frederick Blanchard, by whom they were collected.

The combination of characters diagnostic of this species, are the ovate form, obscurely marked elytra, coarse punctuation, wide thoracic side margins, and slightly stouter equal front claws of the male. It is most nearly related to *mixtus* Lec. The latter is of nearly similar form, but the rufous color is brighter, the elytral markings conspicuous, the side margins of the thorax narrower, the punctuation a little less coarse, the front tarsal claws of the male unequal.

Hydroporus brevicornis new species.

Elongate oval, shining, sparsely, finely pubescent, broadly fuscocastaneous on the disk, gradually changing to rufocastaneous at the margins. Head rufous in front, darker posteriorly, finely, sparsely punctate, distinctly biimpressed, clypeus not thickened. Antennæ unusually short, scarcely passing the hind angles of the thorax, the intermediate joints but little longer than wide, rufous at base, becoming more or less completely infusate apically. Prothorax finely margined at sides, posterior lobe prominent, very sparsely, finely punctate at the middle of the disk, more strongly and closely so toward all the margins. Elytra a little more coarsely punctate, nearly evenly so from base to apex, the punctures separated by from one to two times their own diameters. Beneath, prothorax, epipleuræ and legs rufous, metasternum black, abdomen piceous with tip and lateral spots on last three or four segments, rufous. Prosternal anterior intercoxal prominence moderate, metasternum nearly flat along the median line; postcoxal processes conjointly sub-

truncate, their tips not in the least sinuate, and consequently not at all prominent on the median line. Metasternum finely, sparsely punctate at middle, more coarsely and closely at sides; postcoxal plates and first two ventral segments rather sparsely, moderately coarsely punctate, following ventrals more finely and sparsely so. Length 3.35 to 4 mm.; width 1.7 to 1.85 mm.

Of this species there are before me five examples (including the type) from Starr Lake, 4,890 ft., White Mts., N. H. (Sherman); one example from Randolph, N. H. (Sherman); one from Farmington, N. H., collected by the writer, and one from Tyngsboro, Mass. (Blanchard).

There are no obvious sexual differences in the eight specimens at hand. In all, the front tarsi are moderately broad with the joints slightly decreasing in width from the base, the middle evidently narrower with the joints more conspicuously diminishing in width. The third joint of the middle tarsus is moderately emarginate supero-distally for the reception of the terminal joint but does not seem to be truly bilobed, the terminal joint projecting beyond the third a greater distance than the length of the latter. The claws of the front tarsi are mutually equal, not appreciably stouter, but distinctly shorter than those of the middle tarsi.

Concerning this species, specimens of which were sent to him by the writer in 1902, Dr. Sharp wrote: "Unknown to me; seems not very near anything." It is really quite similar in general aspect to two or three species of the *americanus* type, but is slightly smaller than these, and at once separable by the shorter antennal joints.

Hydroporus dentellus new species.

Moderately elongate oval, moderately shining in both sexes, evidently pubescent; dark brownish piceous, the prothorax and sides of the body anteriorly becoming gradually rufopiceous, the head rufous; in some examples, perhaps less mature, the upper surface is brownish testaceous. Body beneath dark rufopiceous, the sides and apex of abdomen gradually somewhat paler; prothorax rufous, legs dark rufous. Head finely punctate, feebly impressed, clypeus not thickened. Antennæ moderate, rufotestaceous at base, the outer joints more or less completely infusate. Prothorax finely margined at sides, disk sparsely, finely punctate, more coarsely and closely so toward all the margins. Elytra evenly, not very finely punctate, the punctures separated by from one to one and one half times their own diameters as a rule, being, as is often the case, a little closer transversely than longitudinally. Body beneath more coarsely but rather sparsely punctate, the abdominal punctures finer and sparser at the middle and toward the sides posteriorly, as usual.

Anterior claw of front tarsus acutely dentate in the male. Length 3.8 to 4.3 mm.; width 1.8 to 2 mm.

Massachusetts, Tyngsboro, July–August, 5 ♂'s, 4 ♀'s; Marion, 1 ♂; New Hampshire, Farmington, 1 ♂. The type is a Tyngsboro male.

The species belongs to the *americanus* group, but is at once distinguished from allies by the toothed anterior claw of the male front tarsus. The species is not rare at Tyngsboro in various ponds and springs.

***Hydroporus melsheimeri* new species.**

Form rather broadly ovate, widest at or near the anterior third, or but little behind the elytral base; distinctly pointed behind; color rufopiceous, becoming gradually paler toward the sides of the elytra basally, and along the lateral and anterior margins of the thorax, head rufous; surface finely, sparsely pubescent and shining. Antennæ moderate, the outer joints more or less infusate. Head finely, sparsely punctate, moderately biimpressed, clypeus not thickened. Prothorax rather finely margined at sides, finely, sparsely punctate at middle and in front, more strongly and closely posteriorly. Elytra rather finely, not closely, punctate. Beneath piceous, venter either entirely rufous or with the basal segments infusate, propleuræ and legs rufous. Front and middle tarsi of male moderately broadly dilated, the claws of the anterior tarsi not appreciably modified, and mutually subequal, the front claw at most only just visibly shorter. Length 3.25 to 3.75 mm.; width 1.75 to 2 mm.

Massachusetts, Tyngsboro (type ♂) and Marion; 3 ♂'s, 7 ♀'s.

This species is closely allied to *dichrous* Melsh., but is a little smaller, evidently more broadly ovate, and less finely punctate. In *dichrous* the prothorax as well as the head is as a rule uniformly rufous, the venter—in fully colored examples—is piceous, except narrowly at sides and tip; the front tarsi of the male are slightly wider, and there is a marked sexual disparity in this respect, the middle tarsi especially being conspicuously narrower in the female, while in *melsheimeri* the middle tarsi of the female are very nearly as widely dilated as in the male. In *dichrous* the front claw of the anterior tarsus is considerably shorter than the other.